Docket No.: 12810-00333-US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Andreas Eipper et al.

Application No.: 10/587,998 Confirmation No.: 4347

Filed: August 1, 2006 Art Unit: 1796

For: FLUID POLYESTER MOULDING MASSES Examiner: D. L. Lee

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on July 22, 2010, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

Appendix B Evidence
Appendix C Related Proceedings

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

BASF SE

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 19 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 4 and 5
2. Claims withdrawn from consideration but not canceled: 0
3. Claims pending: 1-3 and 6-19
4. Claims allowed: 0
5. Claims rejected: 1-3 and 6-19

C. Claims On Appeal

The claims on appeal are claims 1-3 and 6-19

IV. STATUS OF AMENDMENTS

Applicant did not file an Amendment to the claims After Final Rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention as recited in claim 1 relates to a thermoplastic molding composition comprising:

A) from 10 to 99.99% by weight of at least one thermoplastic polyester (please see page 1, line 7 of the specification);

B) from 0.01 to 50% by weight of a highly branched or hyperbranched A_xB_y polyester (please see page 1, lines 9-10 of the specification),

wherein A_x and B_y are different monomers and indices x and y are the number of functional groups present in A and B (please see page 7, lines 37-39 of the specification),

wherein x is at least 1.1 and y is at least 2.1 (please see page 1, line 10 of the specification),

wherein B) has an OH number (to DIN 53240) of from 0 to 600 mg KOH/g (please see page 8, line 29 of the specification) and a COOH number (to DIN 53240) of from 0 to 600 mg KOH/g (please see page 8, line 31 of the specification),

wherein a degree of branching of B) is from 10 to 99.9% (please see page 8, line 9 of the specification),

and wherein B) has both structural and molecular non-uniformity(please see page 7, lines 41-43 of the specification),

C) from 0 to 60% by weight of other additives (please see page 1, line 12 of the specification), where the total of the percentages by weight of components A) to C) is 100% (please see page 1, line 14 of the specification).

Claim 2 further recites that B) has a number-average molar mass M_n of from 300 to 30 000 g/mol (please see page 8, line 29 of the specification).

Claim 3 further recites that B) has a glass transition temperature T_g of from -50°C to 140°C (please see page 8, lines 35-36 of the specification).

Claim 6 further recites that with respect to B) at least has an OH number or a COOH number greater than 0 (please see page 8, lines 38-40 of the specification).

Claim 7 further recites that B) is obtainable by reacting

(a) one or more dicarboxylic acids or one or more derivatives of the same with one or more at least trihydric alcohols or (b) one or more tricarboxylic acids or higher polycarboxylic acids or one or more derivatives of the same with one or more diols if appropriate in the presence of a solvent and optionally in the presence of an acidic inorganic, organometallic, or organic catalyst, or of an enzyme (please see page 9, lines 1-14 of the specification).

Claim 8 further recites that when variant (a) is utilized, use is made of an at least trihydric alcohol which has hydroxyl groups having at least two different chemical reactivities (please see page 12, lines 16-17 of the specification).

Claim 9 further recites that when variant (a) is utilized, use is made of an at least trihydric alcohol which has hydroxy groups which all have identical chemical reactivity (please see page 12, lines 9-10 of the specification).

Claim 10 further recites that when variant (b) is utilized an at least trihydric alcohol which has hydroxy groups all of which have identical chemical reactivity is used (please see page 12, lines 9-10 of the specification).

Claim 11 further recites that when variant (b) is utilized an at least one tricarboxylic acid or polycarboxylic acid which has carboxy groups having at least two different reactivities is used (please see page 34, lines 18-21 of the specification, original claim 11).

Claim 12 further recites a method for producing fibers, films, or moldings comprising utilizing the thermoplastic molding composition (please see page 25, line 42 of the specification).

Claim 13 further recites a fiber, a film, or a molding of any type obtainable from the thermoplastic molding compositions (please see page 25, line 42 of the specification).

Claim 14 further recites that B) has an OH number of from 1 to 500 mg KOH/g (please see page 8, lines 29-30 of the specification).

Claim 15 further recites that B) has a COOH number of from 1 to 500 mg KOH/g of polyester (please see page 8, lines 31-32 of the specification).

Claim 16 further recites that the degree of branching is from 20 to 99% (please see page 8, lines 7-9 of the specification).

Claim 17 further recites that the degree of branching is from 20 to 95% (please see page 8, lines 7-10 of the specification).

Claim 18 further recites that B) has an M_n of from 300 to 30 000 g/mol (please see page 8, line 25 of the specification).

Claim 19 further recites B) has an M_n of from 400 to 25 000 g/mol (please see page 8, lines 25-26 of the specification).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Has the Examiner established that claims 1-3 and 6-19 are obvious and therefore unpatentable under 35 U.S.C. §103(a) over the cite art and namely over U.S. Patent No. 5,712,336 to Gareiss et al. (hereinafter also "Gareiss"), in view of U.S. Patent Publication No. 2002/0161113 to Dvornic et al. (hereinafter also "Dvornic").

VII. ARGUMENT

A. Gareiss and Dvornic Fail to Render Obvious Claims 1-3 and 6-19

Claims 1-3 and 6-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,712,336 to Gareiss in view of U.S. Patent Publication No. 2002/0161113 to Dvornic et al. The cited references do not render obvious the present invention.

As discussed in the specification, low-molecular-weight additives are usually added to semicrystalline thermoplastics to improve flowability. However, the action of these additives is

subject to severe restriction, because, for example, the fall-off in mechanical properties becomes unacceptable when the amount added of the additive exceeds a certain level.

Also as discussed in the specification, it has been suggested to fabricate thermoplastic compositions which comprise dendrimeric polyesters in the form of an AB_2 molecule. For example, please see WO-97/45474. Here, a polyhydric alcohol as core molecule reacts with dimethylpropionic acid as AB_2 molecule to give a dendrimeric polyester. This contains only OH functionalities at the end of the chain. Disadvantages of these mixtures are the high glass transition temperature of the dendrimeric polyesters, the comparatively complicated preparation process, and especially the poor solubility of the dendrimers in the polyester matrix.

The present invention makes it possible to provide thermoplastic polyester molding compositions which have good flowability together with good mechanical properties, a combination of properties that is very difficult to achieve.

Gareiss discloses flame proofed thermoplastic molding materials that contain a thermoplastic polyester. As appreciated by the examiner, Gareiss does not disclose the highly branched or hyperbranched polyesters A_xB_y employed according to the present invention.

Dvornic described hyperbranched polymers and included in the long list of possible polymers mentioned therein is polyester. However, Dvornic does not include a polyester in any of the examples. The preferred polymers of Dvornic are apparently the polyureas. It would not have been obvious from Dvornic to admix a highly branched or hyperbranched polyester A_xB_y in the polyester compositions of Gareiss.

Dvornic mentions that hyperbranched polyesters "have a lower viscosity and better shear thinning properties for coating applications than similar compositions containing a chemically similar linear polyester . . ." However, Dvornic does not discuss blends of thermoplastic polymers and highly branched or hyperbranched polymers but just discuss hyperbranched polymers. There is no teaching or suggestion found in Dvornic or Gareiss that blends provide molding compositions having good flowability together with good mechanical properties (please see page 2 of the specification). Since there is no teaching or suggestion found in cited references to blend those polymers for the purposes described above, the claimed composition

would not have been rendered unpatentable over these references. Further Applicants note that the references do not teach or suggest all the recitations of the claim method.

In addition, as discussed above and in the specification, problems exist in including dendrimeric polyesters in polyester molding compositions, a possible negative teaching that should be considered. The art should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. Please see *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 U.S.P.Q. 46 (Fed. Cir. 1986).

Moreover, the cited references provide no guidance as to what result effect variable is achieved, i.e., good flowability with good mechanical properties. The only place this result is discussed is the Applicants' own specification. In addition, the references do not recite concentrations at all. Persons skilled in the art faced with the problem of providing a molding composition with reduced viscosity along with good mechanical properties would not be lead by Dvornic to add a highly branched or hyperbranched polyester A_xB_y to a thermoplastic polyester. In fact, selecting a polyester from the list of possible polymers of Dvornic would be fortuitous since there is no preference for polyesters therein.

Since a *prima facie* case of obviousness does not exist, evidence of unexpected results is not necessary. *See Takeda Chemical Indust., LTD v. Alphapharm PTY., LTD* 492 F.3d 1350 (Fed. Cir. 2007). Nevertheless, evidence of unexpected results is provided in the specification and in an obviousness analysis, evidence of unexpected results, when present, should be considered. *See Knoll Pharm. Co., Inc. v. Teva Pharm. USA, Inc.*, 367 F.3d 1381 (Fed. Cir. 2004).

Applicants also kindly direct the Board to Tables 4 and 5 of the specification. In Table 4, the properties of polyester compositions within the claimed range (Examples 12-17) are compared to a polyester composition outside the claimed range (this composition does not contain a hyperbranched polyester). Applicants kindly direct the Board to the strength and flowability properties of these compositions. The comparative Example (1C) has a much lower flow spiral (35) compared to the inventive compositions (42-46). At the same time the inventive samples show comparable mechanical properties such as tensile, modulus of elasticity and

impact strength compared to the comparative example. The inventive examples have superior flow characteristics while maintaining mechanical properties.

Table 5 lists 3 polymer blends containing a polyester and a hyperbranched polyester which is outside the claimed range (A_xB_y Type with X = 1.0 and Y = 2.0). Inspection of Table 5 shows that while these polymer blends have good flow spiral (43-46) they have lower mechanical properties such as notched impact (2-2.5) versus the inventive examples (5-6.1 for samples 12-17 in Table 4).

These results show that the claimed polymer blend has unexpected or superior properties.

According to the examiner, the inventive examples in the specification are not commensurate in scope with the claims. Although, most of the examples are in the 90-99 wt % rang for component A, as appreciated by the examiner, there is an example with 65% of component A. That example contains 30% of glass fibers, and the examiner discounted this example because there is not a comparative example. However, the closest comparisons to prior art are compositions that contain the 90-99 wt. % of A to Example 1C which contains 100 wt % of A.

In addition, it should be noted that it is usual in the thermoplastic field to also sell master batch (concentrates of B) in polyester A) compositions. No argument exists as to why a master batch should not have the same positive properties as for those already shown.[1] Also, Example 6 includes a fiber containing composition. Normally by incorporating the fiber material the flow properties drops significantly and the VN drops because of higher process temperature.

The examiner pointed out that inventive Example 9 has the same mechanical properties as the comparative example, and yet has a lower flow spiral value. With respect to inventive example 9, please note that in Table 3, the MVR was measured at a different temperature, 275°C

[1] Also, Example 6 includes a fiber containing composition. Normally by incorporating the fiber material the flow properties drops significantly and the VN drops because of higher process temperature.

instead of 250°C. The showing between examples 1C and 9 teaches persons skilled in the art that the MVR in IC is higher because the molecular weight drops from VN 130 to 119, which means that the polymer matrix has already degraded. In example 9, it is shown that the VN does not drop very much and that the mechanical properties remain almost the same with the exception that the Modulus of Elasticity is much higher than for the composition in example 1 C. Examples 10 and 11 show the flow properties are improved and the mechanical properties remain in the comparative level to the comparative example. Even if the polymer matrix (example 11) degrades more than the comparative example, the mechanical properties remain on a high level (compared to 1C). This findings are contradictory for a person skilled in the art and would not be expected and are therefore unexpected and surprising.

In conjunction with interpreting 35 U.S.C. §103 under *Graham V. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966) and *KSR Int'l Co. v. Teleflex, Inc*, 127 S. Ct. 1727 (2007), the initial burden is on the Patent Office to provide some apparent reason or suggestion of the desirability of doing what the inventor did, i.e. the Patent Office must establish a *prima facie* case of obviousness. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention, or the Patent Office must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. In addition, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

The mere fact that cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or impliedly suggests the claimed invention, or the Patent Office has presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. No such suggestion appears in the cited art in this matter nor has a convincing line of reasoning convincing line of reasoning been presented in this case. The Examiner's attention in kindly directed to *KSR Int'l Co. v. Teleflex, Inc*, supra; *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ

1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Furthermore, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attained by the present invention (e.g., good flowability with good mechanical properties) needed to sustain a rejection under 35 U.S.C. 103. See *KSR Int'l Co. v. Teleflex, supra, Diversitech Corp. v. Century Steps, Inc.*, 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex,, supra, Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d 1923 (Fed. Cir. 1990), *In re Antonie*, 195 USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the prior art. Along these lines, see *In re Papesch*, supra, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A include the amendments filed by Applicant on April 8, 2009.

Dated: September 21, 2010

Respectfully submitted,

By:/ Burton A. Amernick/
Ashley I. Pezzner
Registration No.: 35,646
Burton A. Amernick
Registration No.: 24,852
CONNOLLY BOVE LODGE & HUTZ LLP
1007 North Orange Street
P. O. Box 2207
Wilmington, Delaware 19899-2207
(302) 658-9141
(302) 658-5614 (Fax)
Attorneys for Assignee

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/587,998

1. A thermoplastic molding composition comprising:

A) from 10 to 99.99% by weight of at least one thermoplastic polyester;

B) from 0.01 to 50% by weight of a highly branched or hyperbranched A_xB_y polyester,

wherein A_x and B_y are different monomers and indices x and y are the number of functional groups present in A and B,

wherein x is at least 1.1 and y is at least 2.1,

wherein B) has an OH number (to DIN 53240) of from 0 to 600 mg KOH/g and a COOH number (to DIN 53240) of from 0 to 600 mg KOH/g,

wherein a degree of branching of B) is from 10 to 99.9%,

and wherein B) has both structural and molecular non-uniformity,

C) from 0 to 60% by weight of other additives,

where the total of the percentages by weight of components A) to C) is 100%.

2. The thermoplastic molding composition according to claim 1, wherein B) has a number-average molar mass M_n of from 300 to 30 000 g/mol.

3. The thermoplastic molding composition according to claim 1, wherein B) has a glass transition temperature T_g of from -50°C to 140°C.

6. The thermoplastic molding composition according to claim 1, wherein B) at least has an OH number or a COOH number greater than 0.

7. The thermoplastic molding composition according to claim 1, wherein B) is obtainable by reacting

(a) one or more dicarboxylic acids or one or more derivatives of the same with one or more at least trihydric alcohols

or

(b) one or more tricarboxylic acids or higher polycarboxylic acids or one or more derivatives of the same with one or more diols

if appropriate in the presence of a solvent and optionally in the presence of an acidic inorganic, organometallic, or organic catalyst, or of an enzyme.

8. The thermoplastic molding composition according to claim 7, where, when variant (a) is utilized, use is made of an at least trihydric alcohol which has hydroxyl groups having at least two different chemical reactivities.

9. The thermoplastic molding composition according to claim 7, where, when variant (a) is utilized, use is made of an at least trihydric alcohol which has hydroxy groups which all have identical chemical reactivity.

10. The thermoplastic molding composition according to claim 7, where when variant (b) is utilized an at least trihydric alcohol which has hydroxy groups all of which have identical chemical reactivity is used.

11. The thermoplastic molding composition according to claim 7, where when variant (b) is utilized an at least one tricarboxylic acid or polycarboxylic acid which has carboxy groups having at least two different reactivities is used.

12. A method for producing fibers, films, or moldings comprising utilizing the thermoplastic molding composition according to claim 1.

13. A fiber, a film, or a molding of any type obtainable from the thermoplastic molding compositions according to claim 1.

14. The thermoplastic molding composition according to claim 1, wherein B) has an OH number of from 1 to 500 mg KOH/g.

15. The thermoplastic molding composition according to claim 1, wherein B) has a COOH number of from 1 to 500 mg KOH/g of polyester.

16. The thermoplastic molding composition according to claim 1, wherein the degree of branching is from 20 to 99%.

17. The thermoplastic molding composition according to claim 1, wherein the degree of branching is from 20 to 95%.

18. The thermoplastic molding composition according to claim 1, wherein B) has an M_n of from 300 to 30 000 g/mol.

19. The thermoplastic molding composition according to claim 1, wherein B) has an M_n of from 400 to 25 000 g/mol.

APPENDIX B

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.